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THE

## WHISTLE SIGNAL:

A PLEA FOR THE MORE SAFE MAN-  
AGEMENT OF RAILROADS.

BY

ROBERT BARCLAY, A. M., M. D.

OF

ST. LOUIS, MISSOURI.

presented by the author.



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# THE WHISTLE SIGNAL:

A PLEA FOR THE MORE SAFE MANAGEMENT OF RAILROADS.\*

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By ROBERT BARCLAY, A. M., M. D.,

OF

ST. LOUIS, MISSOURI,

*Consulting Aural Surgeon to the Hospital Department of the Missouri Pacific Railway Company, Leased and Operated Lines, and of the Missouri, Kansas and Texas Railway Company; Consulting Aural Surgeon to the City Hospital and St. Mary's Hospital, St. Louis; Late of the Clinical Staff of the Beaumont Hospital Medical College, St. Louis; Formerly Assistant Aural Surgeon to the New York Eye and Ear Infirmary, New York, N. Y.*

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There is a very important matter, strictly within the province of railway surgery, which, so far as I can learn, has been almost entirely overlooked by us, in this country. This is remarkable from the fact that the interests of the travelling public are involved, as well as those of the corporations and employees under our professional care. That we have not been urged to a consideration of it by one or more of these interested parties seems still more, remarkable since they must depend, for protection herein, wholly upon us. Here, as elsewhere, our duty does not begin and end in the treatment of diseases and injuries received in railway service, but bears a nobler stamp in that we should forewarn and advise both corporation and employee where we see them ignorantly incurring unnecessary risk of life and property. The congress of railway surgeons of the New World, here assembled, seems a fitting opportunity for discussion of this matter which concerns you

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all. Your committee has honored me with the privilege of presenting it for your consideration; and I trust its importance will make it interesting, irrespective of the manner in which it may be presented. Briefly stated, the matter is this: In view of the fact that no safe provision has as yet been made against the dangers arising from deafness among railway employees; therefore, how shall we dispose of this, that the corporation may not suffer losses through suits for damages to passengers and freight, and that the employees may not meet with injury or death through this cause.

For the sake of sooner reaching our end, it is presumed that every gentleman present to whom these remarks are addressed, has secured from the Superintendent, and employees under his care, such additional practical information as has familiarized him with the method of management of the railroad proper. In thus acquiring a clear understanding of the "rules and regulations," the "code of signals," and the so-called "time-card," for the direction of trackmen, watchmen, switchmen, flagmen, brakemen, engineers, and others, by whom railroads are operated, one cannot escape the conclusion, that, although there seems to be provision for such contingencies, yet nevertheless there are frequent occasions where loss of life and property must result through deafness of the employee to whom a whistle has been sent forth as a signal. (The whistle being the most important of the acoustic signals has been selected as their representative.)

The lives of faithful employees, of passengers and freight entrusted to them, may be said to often hang upon the vibration of an otolith or auditory hair.

That deafness of employees is not more often reported as a cause of railroad accident is doubtless due to the fact that investigators either do not seek for, or, through inexpertness, fail to recognize it. But so far from this being an excuse for ignoring it, it is, to thinking men, a cogent reason for awakening to its realization and guarding against it in every reasonable manner. The possibility of an unnecessary accident from this cause, involving losses for damages to the corporation, and suffering, disability, or death to the employees, who depend upon us, together with losses to the travelling public, should stamp our negligence as discreditable.

Profound deafness among railroad employees is by no means rare; on the contrary, it is met with very often. The reason therefor can be readily declared: the receptive, transmitting, and perceptive parts of

the healthy human ear are nicely adjusted for perception of sound in the conditions under which it is destined to live. As with every other organ and organism, so with the ear and its tissues, when transferred to different surroundings, it adapts itself to these by performance of modified functions, which of course induces conservative organic changes. Consider, for a moment, the conditions imposed upon an ear on entering railroad service. It is exposed to sudden and prolonged, acute and loud noises, and constantly repeated concussions. It is kept at high tension, which, together with its secretions, circulation, etc., must vary with atmospheric vicissitudes. The outer ear, and the tympanum, a part of the respiratory tract, are exposed to the noxious invasions of various kinds of dust, irrespirable gases, strong drafts of air, and sudden changes of temperature on entering and leaving close valleys, cuts, tunnels, covered depots, etc. It must be active, alike in storm and sunshine, in winter and summer. It is often fatigued by protracted duty.

Under these conditions, the ear becomes modified in susceptibility and structure, which disqualifies it for audition in ordinary surroundings elsewhere. If the ear be perfectly healthy at the time of entering railroad service, and if no inflammatory action supervene, the functional modification is established slowly, and to a degree advantageous only to him as an employee, since his ear acquires power to resist the noxious influence of exposure, while retaining, in its new circumstances, ability to hear ordinary sounds—such, for instance, as the voice—a thing which here is beyond the power of an ear whose hearing is normal under other circumstances. This condition is so well defined in mechanics, metal-hammerers, engineers, etc., that it is permissible to term an ear with such modified functions a “mechanic’s ear.” An instance of this condition may be found among boiler-makers who at work converse in an ordinary tone of voice, which is unheard by another person present whose hearing is normal in ordinary quieter surroundings elsewhere. Perhaps a better illustration is this, if, in a quiet place, a remark in a low tone of voice be addressed to a rather deaf boiler-maker and yourself, you, and not he, will hear it; while, if you both now go closely to boiler-makers at their work, a similar remark made in the same low tone of voice will be heard by him, and not by you. It has been reported by employers that some men even after forty years service as boiler-makers do not experience deafness. [S. Sexton.

The Ear and Its Diseases, New York, 1888, page 218.] In such cases, however, the ear must have been beforehand and throughout in a perfectly healthy condition.

If, however, before entering service in the machine-shop or on the road, the ear has become the seat of inflammatory action, even though this process be so slight as to have escaped the employee's notice, the ear becomes more liable to sudden and profound deafness. Ignorant of this fact, and indifferent to the condition of the applicant's ear, the railway official admits him as an employee, the latter also ignorant of his danger, and assigns to him a duty, whose faithful performance, instead of increasing his efficiency, will, on the contrary, in his condition, render him less and less fitted for a position where important interests may depend upon his hearing. To add to the danger, such deafness is usually developed insidiously and unrecognized, unless brought to the employee's notice through sudden aggravation by unusual exposure, or through accident. The possibility of sudden development of profound deafness in railroad service from causes ever present being so great and ever at hand, the absence of aural affections at the time of an examination is no guarantee against their development at any time in the future.

Appended to this paper will be found a collection of references to the literature of this subject; this I shall not read, as it will appear in print with this paper, for the convenience of those who desire further light upon this subject. I shall not weary you by reciting a history of the many cases of deafness among railroad employees, which I have met with up to this time, but merely state that, during the past year for example, among those treated by me, there were fourteen from the machine and boiler shops, ten from those engaged in track work, two station-agents and telegraph-operators, three watchmen, one switchman, two train-baggage-men, five conductors, four brakemen, seven locomotive-firemen and eight locomotive-engineers, whose deafness interfered with the proper performance of their duty, and caused them more or less anxiety.

In view of the fact that we have generally overlooked or misunderstood this matter, namely, that railroad service tends to the production of deafness, especially in ears already slightly affected; that it may be developed at any time, without the employee's knowledge; may be ignored by him when recognized, and may become suddenly aggravated

while on duty; that it may lead to loss of life, limb, and property, and involve the corporation in suits for damages,—in view of this, I offer the following suggestions:—

Present this subject in suitable form to the proper corporate officers, superintendents, department masters, and others, whose duty it is to employ, superintend, and direct the men in the machine shops and on the road. Let the employee also be informed of these facts, and of the dangers which deafness brings to himself, the corporation, and those placed under his professional care. You will do well to make certain suggestions which the company should adopt for its own protection, such as the following:

All applicants for employment in the machine shop or on the road, before being engaged, should be pronounced duly qualified by the aural surgeon of the company.

All candidates for promotion from the machine shop to positions on the locomotive-engines, before receiving promotion, should be pronounced duly qualified by the aural surgeon.

No locomotive-fireman should be promoted to the position of engineer until his fitness for the place shall first have been certified by the aural surgeon.

All employees, in any positions whatever in the machine shop or on the road, in consequence of whose deafness loss of life, limb, or property might occur, should report at stated intervals to the aural surgeon for his examination.

If, on examination, deafness be found so profound as to otherwise endanger the life of the employee and that of others placed under his official care, he should be told thereof, warned, and, if necessary, be forthwith relieved from duty to undergo suitable treatment.

If, in the faithful discharge of his duty to the company, the employee become permanently disabled by deafness, he should not therefore be dismissed from the company's service to earn his daily bread at the risk of his life and that of others on some other road, but the corporation which he has so faithfully served should consult its own best interests by pensioning him, or else providing remunerative employment for him in some other suitable position where no special danger will attend his deafness.

Lest the services of a qualified applicant or employe be lost, or an unqualified one engaged, the company should take the precaution to have these aural examinations properly made.

I can not do better in conclusion than to enjoin, in this matter, observance of the order which reads as follows:

“REMEMBER THE RULE THAT REQUIRES ALL EMPLOYEES, IN ALL CASES OF DOUBT, TO TAKE THE SIDE OF SAFETY.”

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